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EXAMINER

ABRAHAM, AMJAD A

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,600	Applicant(s) PIATKOWSKI ET AL.	
	Examiner AMJAD ABRAHAM	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/03/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's remarks and amendments, filed on December 30, 2008, have been carefully considered. No claims have been added or withdrawn. Claims 10, 17, and 22 have been amended. Claims 10-29 are still pending.

Claim Rejections - 35 USC § 112

1. Examiner withdraws the rejection under 35 U.S.C. 112, second paragraph as applicant has amended claim 17 to fix the dependency and render the antecedent basis rejection moot.

New Grounds of Rejection based on applicant's amendments filed on December 30, 2008

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. *Claims 10 and 12-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott (USP No. 5,108,691) in view of Reetz et al. (US Pre-Grant Publication 2002/013340).*

5. In claim 10 Elliott discloses a process for preparing and/or setting air and steam-permeable structural members containing a mixture of thermoplastic binder and fibers, optionally with additional foam in the form of flakes and/or granules **(A process for making a thermoformable mat by utilizing a heat transfer medium (steam) to heat and cool the composite material, see abstract)**, said process comprising the steps of: (a) positioning a structural member **(Porous thermoformable mat)** between shaping surfaces **(pair of contoured dies)** in a pressure resistant chamber of a mold having upper tool and lower tool portions **(See claim 1 and figures 1-3 disclosing that mat is placed between upper and lower mold tools.)**; (b) deaerating the chamber by applying a vacuum **(See column 1 lines 55-61, disclosing the deaerating process that occurs when steam is applied to a molding process. The ratio of steam volume and the ratio of air volume change during the charging process. Essentially, when steam volume increases the air volume decreases, thus deaerating the molding chamber.)**; (c) Pressurizing said vacuum chamber with a vaporous heat-transfer medium **(See column 2 lines 29-44, disclosing the use of superheated steam to pressurize the chamber.)**; and (d) applying a vacuum to said

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chamber to evaporate the condensed heat-transfer medium. **(See abstract and column 8 lines 15-24, disclosing that the structural member (mat) can be cooled by applying a vacuum at the end of the process to pull ambient air through the mat to eliminate condensed steam.)**

- a. In sum, Elliott discloses a process to shape an structural member by (1) placing a structural member (mat) into a pair of contoured dies; (2) deaerating the chamber by applying steam under a vacuum; (3) pressurizing the chamber by adding superheated steam (vaporous heat transfer medium); and (4) applying a vacuum to evaporate the condensed steam.
- b. With respect to claim 10, Elliot does not teach wherein shaping surfaces have low to no heat transfer to or from the mold.
- c. However, Reetz teaches that the mold used can be made of RTV rubber which is known to have a low coefficient of thermal conductivity. **(See paragraphs 0087-0089).**
- d. Elliott and Reetz are analogous art because they are from the same field of endeavor which is using steam to heat up an air permeable preform. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Elliott and Reetz before him or her, to modify the teachings of Elliott to include the teachings of Reetz for the benefit of eliminating system heat loss through the mold. The motivation for doing so would have been to use a coating which when applied to the surface of a mold would limit the heat transfer from the steam to the mold. This would allow for

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better steam usage and minimize utility costs. Therefore it would have been obvious to combine Elliott with Reetz in order to minimize heat transfer loss in the molding system.

6. In claim 12, Elliott discloses wherein the structural member has at least two layers. **(See example 4 in column 12, disclosing that the structural member (mat) has at least two layers; one layer being nonwoven polyester reinforcement and the second layer being a foam backed decorative fabric (nylon).)**

7. In claim 13, Elliot discloses wherein said layers are of different materials. **(See example 4 in column 12, disclosing that the structural member (mat) has at least two layers; one layer being nonwoven polyester reinforcement and the second layer being a foam backed decorative fabric (nylon).)**

8. In claim 14, Elliott discloses wherein said shaping surfaces are perforated sheets spaced apart from said pressure resistant chamber thereby defining a steam channeling space. **(See figures 1-5, specifically part number (47) showing perforated holes with steam channeling space.)**

e. With respect to claim 14 Elliott does not specifically disclose wherein said shaping surfaces are perforated metal sheets.

f. However, Reetz discloses wherein said shaping surfaces are perforated metal sheets **(paragraph 0092, disclosing that the perorated sheets are made of metal).**

g. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Elliott and Reetz before

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him or her, to modify the teachings of Elliott to include the teachings of Reetz for the benefit of having perforated sheets made of metal. The motivation for doing so would have been to use a material which was the same material as the underlying mold. This would allow for better ease of mold construction plus it is conventional in the art to apply a coating to the perforated metal section to eliminate any unwanted heat transfer. Therefore it would have been obvious to combine Elliott with Reetz in order to use metal sheets as the perforated section.

9. In claim 15, Elliott discloses wherein said metal sheets are disposed at a distance near the pressure resistant chamber. **(See column 9 lines 42-50, disclosing that the perforated metal sheets cover the entire contact area of the pressure resistant chamber. Elliot clearly shows in Figures 2 that the metal sheets are nearly completely contacting the structural member (mat). Column 9 lines 24-29, discloses that the size and spacing of the perforated metal sheets is dependant on the density of the mat.)**

10. In claim 16, Elliott does not specifically teach wherein the shaping surfaces comprise a layer of material having a low thermal conductivity.

h. However, Reetz teaches wherein the shaping surfaces comprise a layer of material having a low thermal conductivity. **(See paragraphs [0087, 0088, 0110], disclosing the importance of using a material with a low coefficient of thermal conductivity in the dies. The reason for this is that metal dies absorb too much heat from the super heated steam and thereby limiting the**

efficiency of the process. Reetz discloses adding RTV rubber, Teflon, or Mylar to a mold in order to lower the heat transfer to the mold.)

i. The motivation for doing so would have been to use a coating which when applied to the surface of a mold would limit the heat transfer from the steam to the mold. This would allow for better steam usage and minimize utility costs. Therefore it would have been obvious to combine Elliott with Reetz in order to minimize heat transfer loss in the molding system.

11. In claim 17, Elliott teaches wherein said sheets have a layer thickness of from about 1 to about 30 mm. **(See column 9 lines 42-50, disclosing the layer thickness of the perforated sheets being ¼ inch. ¼ inch is roughly 6.35 millimeters.)**

12. In claim 18, Elliott discloses wherein said layer of material is selected from the group consisting essentially of PTFE, EPDM, epoxy resin or phenolic resin. **(In column 3 lines 41-45 and column 1 lines 10-15, Elliott discloses the use of thermoplastics, thermosets, and phenol-formaldehyde resin in producing the structural members (mats). Obviously one having the ordinary skill in the art at the time of invention would have had the knowledge to use multiple plastic materials such as PTFE, EPDM, epoxy, and phenolic resin. Elliot discloses many times that adhesive materials are preferred and this would have suggested to one having skilled in the art to use epoxy or phenolic resin.)**

13. In claim 19, Elliott teaches wherein said upper and lower mold tools include contoured blocks which form the mold base. **(See claim 1 disclosing the use of complementary contoured die which define the molding space.)**

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14. In claim 20, Elliott teaches wherein said contoured blocks are formed from a material selected from the group consisting essentially of aluminum steel, Cast iron or cast aluminum. **(See column 9 lines 14-17, which discloses the use of cast aluminum in the construction of the contoured mold.)**

15. In claim 21, Elliott teaches wherein said mold bases are heated to a temperature to between about 120° to 180 °C. **(See column 2 lines 11-20, disclosing that a prior art method for forming resinated mats preheated the dies from 140 C to 230 C.)**

16. *Claims 11 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elliott (USP No. 5,108,691) in view of Reetz et al. (US Pre-Grant Publication 2002/013340) as evidenced by Shin-Etsu Chemical Co., Ltd., RTV Rubber, For Electrical, Electronic, and General Industrial Use, (2004), Pages 1-32.*

17. In claim 11 Elliott does not specifically teach wherein the heat transfer per unit mass of the structural member between the vaporous heat-transfer medium and the pressure resistant chamber is lower than 250 m²/s² per 1 m² of surface of the structural member and per 1 K of heating the structural member.

j. However, Reetz discloses wherein the heat transfer per unit mass of the structural member between the vaporous heat-transfer medium and the pressure resistant chamber is low. **(See paragraphs [0087, 0088, 0110], disclosing the importance of using a material with a low coefficient of thermal conductivity in the dies. The reason for this is that metal dies absorb too**

much heat from the super heated steam and thereby limiting the efficiency of the process. Reetz discloses adding RTV rubber, Teflon, or Mylar to a mold in order to lower the heat transfer to the mold. RTV rubber is known to have a low thermal conductivity as seen in Shin-Etsu product guide (made part of this application, Shin-Etsu Chemical Co., Ltd. Pages 16-20) disclosing that RTV Rubber has a low thermal conductivity between the ranges of 0.6 W/m.K to 1.9 W/m.K). Essentially, Reetz discloses the claimed

invention except for range the heat transfer per unit mass range of 250 m²/s² or lower. It would have been obvious to one having the ordinary skill in the art at the time the invention was made to use routine experimentation to find a coating material for a metal mold that would limit heat transfer within the claimed range, Since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimal or workable range involves only routine skill in the art. One would have been motivated to find a coating with a low thermal conductivity/heat capacity for the benefit of slowing heat loss from the superheated steam to the metal mold. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

18. In claim 22, Elliott discloses a process for preparing and/or setting air and steam-permeable structural members containing a mixture of thermoplastic binder and fibers, optionally with additional foam in the form or flakes and/or granules **(A process for making a thermoformable mat by utilizing a heat transfer medium (steam) to heat and cool the composite material, see abstract)**, said process comprising the steps

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of: (a) positioning a structural member **(Porous thermoformable mat)** between shaping surfaces in a pressure resistant chamber of a mold having upper tool and lower tool portions **(See claim 1 and figures 1-3 disclosing that mat is placed between upper and lower mold tools.)**; (b) deaerating the chamber by applying a vacuum within a range of from 0.5 to 0.01 bar absolute **(See column 1 lines 55-61, disclosing the deaerating process that occurs when steam is applied to a molding process. The ratio of steam volume and the ratio of air volume change during the charging process. Essentially, when steam volume increases the air volume decreases, thus deaerating the molding chamber. The prior art disclosed discusses that the steam is delivered at a very low pressure of 2 to 10 psig or .15 to .7 bars)**; (c) pressurizing said vacuum chamber with a vaporous heat-transfer medium within a pressure range of from 2 to 10 bar absolute **(See column 2 lines 29-44, disclosing the use of superheated steam to pressurize the chamber. And see claim 7 disclosing that steam pressure is between 30 to 90 psig or 2 to 6.2 bars)**; and (d) applying a vacuum to said chamber to evaporate the condensed heat-transfer medium within a range of from 0.5 to 0.1 bar absolute. **(See abstract and column 8 lines 15-24, disclosing that the structural member (mat) can be cooled by applying a vacuum at the end of the process to pull ambient air through the mat to eliminate condensed steam. Inherently a low pressure system can be used to pull ambient air through the system.)**

- k. Elliot further teaches wherein condensate is formed within the structural member. **(See column 8 line 19).**

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- I. With respect to claim 22, Elliot does not teach
 - i. Wherein shaping surfaces have low to no heat transfer to or from the mold.
 - ii. Wherein the heat transfer per unit mass of the structural member between the vaporous heat-transfer medium and the pressure resistant chamber is lower than 250 m²/s² per 1 m² of surface of the structural member and per 1 K of heating the structural member.
- m. However, Reetz teaches
 - iii. That the mold used can be made of RTV rubber which is known to have a low coefficient of thermal conductivity. **(See paragraphs 0087-0089).**
 - iv. Wherein the heat transfer per unit mass of the structural member between the vaporous heat-transfer medium and the pressure resistant chamber is low. **(See paragraphs [0087, 0088, 0110], disclosing the importance of using a material with a low coefficient of thermal conductivity in the dies. The reason for this is that metal dies absorb too much heat from the super heated steam and thereby limiting the efficiency of the process. Reetz discloses adding RTV rubber, Teflon, or Mylar to a mold in order to lower the heat transfer to the mold. RTV rubber is known to have a low thermal conductivity as seen in Shin-Etsu product guide (made part of this application, Shin-Etsu Chemical Co., Ltd. Pages 16-20) disclosing that RTV Rubber has a**

low thermal conductivity between the ranges of 0.6 W/m.K to 1.9

W/m.K). Essentially, Reetz discloses the claimed invention except for range the heat transfer per unit mass range of 250 m²/s² or lower. It would have been obvious to one having the ordinary skill in the art at the time the invention was made to use routine experimentation to find a coating material for a metal mold that would limit heat transfer within the claimed range, Since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimal or workable range involves only routine skill in the art. One would have been motivated to find a coating with a low thermal conductivity/heat capacity for the benefit of slowing heat loss from the superheated steam to the metal mold. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235.

n. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Elliott and Reetz before him or her, to modify the teachings of Elliott to include the teachings of Reetz for the benefit of eliminating system heat loss through the mold. The motivation for doing so would have been to use a coating which when applied to the surface of a mold would limit the heat transfer from the steam to the mold. This would allow for better steam usage and minimize utility costs. Therefore it would have been obvious to combine Elliott with Reetz in order to minimize heat transfer loss in the molding system.

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19. In claim 23, Elliott discloses wherein the structural member has at least two layers. **(See example 4 in column 12, disclosing that the structural member (mat) has at least two layers; one layer being nonwoven polyester reinforcement and the second layer being a foam backed decorative fabric (nylon).)**

20. In claim 24, Elliott discloses wherein at least two of said layers are of different materials. **(See example 4 in column 12, disclosing that the structural member (mat) has at least two layers; one layer being nonwoven polyester reinforcement and the second layer being a foam backed decorative fabric (nylon).)**

21. In claim 25, Elliott discloses wherein said shaping surfaces are perforated sheets spaced apart from said pressure resistant chamber thereby defining a steam channeling space**(See figures 1-5, specifically part number (47) showing perforated holes with steam channeling space.)**, said sheets being disposed at a distance of from about 2 to about 20 mm from said pressure resistant chamber. . **(See column 9 lines 42-50, disclosing that the perforated metal sheets cover the entire contact area of the pressure resistant chamber. Elliot clearly shows in Figures 2 that the metal sheets are nearly completely contacting the structural member (mat). Column 9 lines 24-29, discloses that the size and spacing of the perforated metal sheets is dependant on the density of the mat.)**

o. However, Elliot does not disclose wherein the perforated sheets are metal. **Paragraph 0092, disclosing that the perorated sheets are made of metal].**

p. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Elliott and Reetz before

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him or her, to modify the teachings of Elliott to include the teachings of Reetz for the benefit of having perforated sheets made of metal. The motivation for doing so would have been to use a material which was the same material as the underlying mold. This would allow for better ease of mold construction plus it is conventional in the art to apply a coating to the perforated metal section to eliminate any unwanted heat transfer. Therefore it would have been obvious to combine Elliott with Reetz in order to use metal sheets as the perforated section.

22. In claim 26, Elliot discloses wherein said sheets applied to the mold chamber in a layer thickness of from about 1 to about 30 mm. **(See column 9 lines 42-50, disclosing the layer thickness of the perforated sheets being ¼ inch. ¼ inch is roughly 6.35 millimeters.)**

q. With respect to claim 26 Elliott does not explicitly teach wherein the shaping surfaces comprise a layer of material having a low thermal conductivity.

r. However, Reetz teaches wherein the shaping surfaces comprise a layer of material having a low thermal conductivity. **(See paragraphs [0087, 0088, 0110], disclosing the importance of using a material with a low coefficient of thermal conductivity in the dies. The reason for this is that metal dies absorb too much heat from the super heated steam and thereby limiting the efficiency of the process. Reetz discloses adding RTV rubber, Teflon, or Mylar to a mold in order to lower the heat transfer to the mold.)**

s. At the time of invention, it would have been obvious to the applicant being one of ordinary skill in the art, having the teachings of Elliott and Reetz before

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him or her, to modify the teachings of Elliott to include the teachings of Reetz for the benefit of eliminating system heat loss through the mold. The motivation for doing so would have been to use a coating which when applied to the surface of a mold would limit the heat transfer from the steam to the mold. This would allow for better steam usage and minimize utility costs. Therefore it would have been obvious to combine Elliott with Reetz in order to minimize heat transfer loss in the molding system.

23. In claim 27, Elliott discloses wherein said Upper and lower mold tools include contoured blocks which form mold bases. **(See claim 1 disclosing the use of complementary contoured die which define the molding space.)**

24. In claim 28, Elliott discloses wherein said contoured blocks are formed from a material selected from the group consisting essentially of aluminum, steel, cast iron or cast aluminum. **(See column 9 lines 14-17, which discloses the use of cast aluminum in the construction of the contoured mold.)**

25. In claim 29, Elliot discloses wherein said mold bases are heated to a temperature to between about 120° to 180 °C. **(See column 2 lines 11-20, disclosing that a prior art method for forming resinated mats preheated the dies from 140 C to 230 C.)**

Response to Arguments

1. Applicant's arguments filed December 30, 2008 have been fully considered but they are not persuasive and/or moot in view of new rejections based on applicant's amendments.
2. **Attorney Argument #1:** "Applicant seems to argue that Elliot is not concerned with utilizing thermoplastic binders (adhesives) in conjunction with the claimed process."
3. **Examiner Response #1:**
 - a. Elliott repeatedly discloses that both thermoplastic and thermosettable adhesives can be applied to binders and used in the stated process.
 - i. See
 - (1) Abstract
 - (2) Column 3 lines 41-53
 - (3) Column 4 lines 9-14
 - (4) Column 4 lines 41-48
4. **Attorney Argument #2:** "Applicant goes on to argue that the minimal heat transfer through the mold is necessary for the invention to operate because the heat capacity of the condensed heat transfer medium (steam) is what heats up the mod material."
5. **Examiner Response #2:**
 - b. Although Elliot does not disclose expressly that the heat transfer through the mold must be kept at a minimum. Elliot does disclose that heat-curing adhesives such as thermoplastic adhesives require moisture to cure. (See

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column 3 lines 62-65). Therefore, one having the ordinary skill in the art would have been motivated to ensure that there was moisture in the system. This can be done by using saturated steam or by controlling the temperature of the mold. (See column 5 lines 58-67). Additionally, one skilled in the art would have looked to ensure that the mold did not add any unwanted heat to the system, thus, vaporizing any condensate. From this one having the ordinary skill in the art would have looked to the teachings of Reetz in order to ensure that the mold did not supply any unwanted heat to the molding system.

6. **Attorney Argument #3:** "Applicant argues that Reetz is concerned with avoiding condensation and using hot, dry gases instead of steam and thus teaches away from said invention."

7. **Examiner Response #3:**

c. However, Reetz expressly points out the fact that steam can be used to cure a fiber resinated material and that moisture is added to the system when using steam. (See paragraph 0007 and 0008). Reetz only uses hot, dry gases as a substitute to steam in order to be used in systems that do not need moisture curing such as thermosetting materials. By not using steam moisture can be eliminated and cycle time can be decreased due to the elimination of the moisture removal step. Reetz goes on to clearly state that even when using steam, it is an endeavor of one having the ordinary skill in the art to eliminate any heat absorption by the mold. **(See paragraph 0089)**. This is done so that the mold absorbs only a minimal amount of heat so that the material is what is being

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heated and not the mold. By doing this one would reduce wasted energy consumption in needed to overheat the mold system in order to overcome the heat transfer loss through the mold. To solve this problem RTV rubber which is known to have a low coefficient of thermal expansion is used in order to ensure that the mold absorbs as little amount of heat as possible. Using RTV rubber would allow the heat transfer of the mold to be low and thus eliminating the mold material from sticking to the mold during the cooling operation. Therefore, it would have been obvious to one having the ordinary skill in the art to combine Elliott and Reetz for the benefit of reducing heat transfer in a molding system and conserving wasted energy losses.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMJAD ABRAHAM whose telephone number is (571)270-7058. The examiner can normally be reached on Monday through Friday 8:00 AM to 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AAA

/Philip C Tucker/

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Supervisory Patent Examiner, Art Unit 1791